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[54] **SORTER STRUCTURE BASED ON SHIFTABLE CONTENT MEMORY**

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[58] **Field of Search** ..... 395/800, 840, 395/821; 364/362.1, 362.3, DIG. 1

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[57] **ABSTRACT**

An optimized high-speed sorter has a plurality of process elements connected in series. Each process element includes a sorting unit used to store a sorted item, and a comparing/controlling unit coupled to the sorting unit. In this sorter, all sorted items are compared with the input item simultaneously, and then are divided into an LE-group wherein the sorted items are less than or equal to the input item, and a G-group wherein the sorted items are greater than the input item. We assume that the sorted items are arranged in a descending sequence from left to right. In the insertion operation, the sorted items in the LE-group are shifted rightwards simultaneously, and the input item is loaded in the position between the LE-group and G-group. In the deletion operation, only the sorted items in the LE-group are shifted leftwards simultaneously. In order to accelerate the operation speed, the sorter adopts a pre-shift strategy.

14 Claims, 10 Drawing Sheets